

REMARKS

Applicant has amended the specification to correct clerical errors on page 7. Applicant has amended the claims to better define the invention. Applicant has canceled claims 18-21 without prejudice to file a divisional application for them. No additional fee should be due for new claim 22 because of the cancellation of the other claims. Applicant respectfully traverses the rejection of the claims over the cited art and respectfully requests reconsideration.

A number of the claims were rejected over Harter. In Harter, after the initial layer has been deposited on mandrel 5, the mandrel is removed and placed on a separate machine containing rollers 18'. Rollers 18' are not mounted adjacent torches A and B for movement with them. Rather, since they are on a separate machine, mandrel 5 must be removed from the metal application machine, then installed on the roller machine after each layer is applied (page 2, column 1, lines 66-73). Though the tubing mandrel is still hot, the rolling operation is not performed simultaneously with the metal deposition process as required in all of the amended claims.

Similarly, in the embodiment of Figures 10-15, rod 23 is removed from support 24 after the weld has been deposited. The rod is placed on a separate machine and passed through rollers 27 to form the cylindrical shape indicated by the numeral 29 in Figure 15. The separate machine has an induction heater 26 that reheats rod 23 as it passes through rollers 27, 28 (page 2, column 2, lines 65-70).

In the embodiment of Figures 16-20, a single strip 30 is deposited on plate 31, then the plate and strip are placed upon a table 32 and fed over a source of heat 33 to bring the strip to

forging temperature prior to the deposition of an additional layer of metal (page 3, column 1, lines 24-28).

Claim 1 as amended requires creating a first layer of the item by melting a portion of the metal with the directional heat source onto a support surface while simultaneously rolling the roller over a plasticized portion of the molten metal in a continuous process. The continuous process of melting the feed metal and rolling over the feed metal to form an item is not suggested by Harter, therefore Applicant respectfully submits that Harter does not anticipate the invention under 35 USC 102.

Claim 13 similarly requires moving the wire and roller simultaneously along a support surface to create a first layer. Harter teaches rolling in a separate operation. Also, the third independent claim, which is new claim 22, requires simultaneously rolling the roller over a plasticized portion of the molten metal in a continuous process.

Persson discloses welding two objects together along a seam 14. Persson does not suggest applying a subsequent layer on the seam to create a three-dimensional object. Persson deals with welding, not constructing an object. Claim 1 as amended requires creating a second layer of the item by melting a portion of the metal with the directional heat source onto the first layer while simultaneously rolling the roller over the plasticized portion of the molten metal of the second layer in a continuous process. This is not suggested by Persson, therefore Applicant submits that claim 1 is not anticipated under 35 USC 102(b) by Persson.

Similarly, claim 13 requires repeating steps (a) through (c) to create a second layer on top of the first layer. Claim 22 requires moving the gantry an increment farther from the support

surface and repeating steps (c) through (d) for second and subsequent layers of the item on top of the first layer of the item.

Steigerwald also deals with a welding process for welding two members together. In Figure 1, a roller 8 is used to apply a tape 7 of metal onto workpiece 1. There is no suggestion of applying multiple layers of tape 7, rather Figure 1 deals with applying a single layer to workpiece 1. The other embodiments do not use rollers and also deal with welding.

JP56-151171 discloses filling an inlay 3 in a groove 2 of a workpiece 1. Roller 7 flattens the inlay as shown on the right upper drawing. Excess metal is trimmed off. There is no suggestion of applying multiple layers to construct an item, as required in all of the claims.

JP63-274779 discloses hardfacing a workpiece 1 by winding a wear resistant metallic strip around it. There is no suggestion of making multiple passes in subsequent layers.

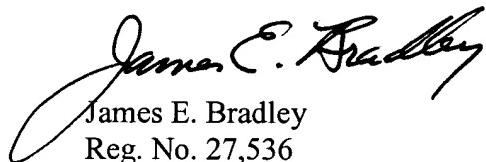
In Lewis, metal powder is melted as it flows out nozzle 41 to article 3. Controller 25 controls movement of tables 5 and 6 and arm 23. There is no roller used in conjunction with the formation of the article. Even if the process in Steigerwald is controlled by computer as in Lewis, the combination still teaches to apply only a single layer of flexible tape 7. Similarly, combining Lewis with JP63-274779 would still result in applying a single strip to a member 1 for wear resistance. JP11-245063 discusses cladding a single layer onto a workpiece 3.

In summary, only Harter and Lewis disclose methods for forming an article by depositing layers of feed metal on top of each other. However, neither suggests the invention because neither suggests using a roller simultaneously while melting the metal. The references that do show simultaneous rolling deal with single layers being applied to a member or rolling a welding

seam. In these references, the force applied to the single layer transmits directly through the single layer to the metal member below. In this application, the force of the roller on the second and subsequent layers must pass through each previously formed layer. There is no teaching that simultaneously rolling and melting of feed metal would work for subsequent layers to construct a three-dimensional object.

Applicant respectfully submits that the claims are now in condition for allowance and favorable action is respectfully requested.

Respectfully submitted,



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